

REMARKS

The foregoing Amendment and remarks which follow are responsive to the Office Action mailed October 24, 2002, in relation to the above-identified patent application. In that Office Action, the Examiner rejected Claims 3, 21 and 22 under 35 U.S.C. §112 due to purported ambiguities in the language of Claims 3 and 21. Additionally, the Examiner rejected Claims 1-3, 9-11 and 19-22 under 35 U.S.C. §102(b) as being anticipated by U.S. Patent No. 5,689,135 (the Ball 1 reference), and rejected Claims 4-8 and 23-25 under 35 U.S.C. §103(a) as being obvious over the combination of the Ball 1 reference and U.S. Patent No. Re. 36,613 (the Ball 2 reference).

By this Amendment, Applicant has amended Claims 3 and 21 in a manner believed to overcome the Section 112 rejections advanced by the Examiner in relation thereto. More particularly, Applicant has changed the dependency of Claim 3 to Claim 1, and has described the conductive connectors as comprising first and second conductive wires which are used to facilitate the electrical connection of the first and second semiconductor dies to respective ones of the first and second surfaces of the leads. Applicant respectfully submits that the phrase "respective ones" is often used in claim drafting since it is commonly understood to describe a one-to-one correlation between corresponding groups of elements, e.g., the letters (plural) of the alphabet are included on "respective ones" of the keys (plural) of a keyboard. In addition to amending Claim 3, Applicant has also amended Claim 21 to clarify that the first surface of each lead is oriented between the second and third surfaces thereof. Additionally, in Claim 21, Applicant has deleted those occurrences of the phrase "respective ones of" preceding the recitation of the first and second conductive wires. However, the recitation of the phrase "respective ones of" is maintained

in relation to the description of the relationship between the first and second semiconductor dies and the first and second surfaces of the leads, and is believed to be proper for the same reasons previously discussed in relation to Claim 3.

Referring now to the Section 102(b) rejection advanced by the Examiner in relation to each of independent Claims 1 and 19, Applicant respectfully submits that such claims, in their present form, are not anticipated or rendered obvious by the teachings of the Ball 1 reference. In independent Claim 1, each of the leads is described as having first and second surfaces which are disposed in opposed relation to each other, and a third surface which, like the first surface, is also disposed in opposed relation to the second surface. The first surface is itself described in Claim 1 as being oriented between the second and third surfaces. Additionally, in Claim 1, the first semiconductor die is described as being attached to the second surface of each of the leads, with the second semiconductor die itself being described as attached to the first semiconductor die, i.e., the second semiconductor die is stacked directly upon the first semiconductor die. In Claim 3, which is now directly dependent on Claim 1, the conductive connectors are described as comprising first and second conductive wires, with the first conductive wires being described as electrically connecting the bond pads of the first semiconductor die to respective ones of the first surfaces of the leads and the second conductive wires electrically connecting the bond pads of the second semiconductor die to respective ones of the second surfaces of the leads. As recited in Claim 1 and explained above, the first surface of each lead is disposed in opposed relation to the second surface thereof, and oriented between the second and third surfaces. In Claim 8, the third surface of each of the leads is described as being exposed within the encapsulating portion.

Similar to independent Claim 1, in independent Claim 19, the second semiconductor die

is described as being attached to the first semiconductor die, i.e., the second semiconductor die is stacked upon the first semiconductor die. Claim 21, which is dependent upon Claim 20, describes the first, second and third surfaces of the leads, and the electrical connection of the first and second semiconductor dies to respective ones of the first and second surfaces through the use of the first and second conductive wires. Claim 22, which is also dependent on Claim 21, is analogous to Claim 8 described above and describes the third surface of each of the leads as being exposed within the encapsulating portion.

Contrary to the Examiner's argument, Applicant respectfully submits that the Ball 1 reference does not teach, suggest or show any one of the above-discussed structural attributes discussed in relation to Claims 1, 3, 8, 19, 21 and 22. Figure 1 of the Ball 1 reference highlighted by the Examiner discloses an assembly 10 wherein a lower semiconductor die 12 is attached to the lower surfaces of a plurality of leads 16 through the use of a lower shielding layer 20. The lower die 12 is electrically connected to the leads 16 through the use of lower bond wires 26 which extend from the bond pads 18 of the lower die 12 to the upper surfaces 28 of the leads 16. Once the lower bond wires 26 have been attached to the upper surfaces 28 of the leads 16, portions of the lower bond wires 26 extending over the upper surfaces 28 are covered with an upper, second shielding layer 30 which is itself used to attach an upper semiconductor die 14 to the upper surfaces 28 (see column 4, lines 29-32). The upper die 14 is electrically connected to the leads 16 through the use of upper bond wires 36 which extend from the bond pads 38 of the upper die 14 to the upper surfaces 28 of the leads 16. Thus, as is clearly shown in Figure 1 of the Ball 1 reference and described in the specification thereof, the lower and upper bond wires 26, 36 are each attached to a common surface of each lead 16, i.e., the upper surface 28 thereof.

Applicant respectfully submits that the Ball 1 reference is devoid of any teaching or suggestion regarding the first, second and third lead surfaces recited in Claims 1 and 21, or the use of conductive wires to electrically connect the first and second semiconductor dies to respective ones of the first and second surfaces of the leads as recited in Claims 3 and 21. In analogizing the structural attributes of the assembly 10 shown in Figure 1 of the Ball 1 reference to the various limitations recited in Claims 1, 3 and 21, the upper surface 28 of each lead 16 would arguably be most closely analogous to the recited second surface, with the lower surface of each lead 16 being most closely analogous to the third surface. Completely absent is the recited first surface which is also described as being disposed in opposed relation to the second surface (upper surface 28) and oriented between the second and third surfaces (upper surface 28 and lower surface of the lead 16). There is simply no such first surface in any lead 16 of the Ball 1 reference. The innermost end of each lead 16 does not qualify as the first surface since it does not extend in opposed relation to the upper surface 28 (second surface) thereof.

Due to the complete absence of the first surface in each of the leads 16, it necessarily follows that the Ball 1 reference fails to satisfy the limitation regarding the first and second semiconductor dies being electrically connected to respective ones of the first and second surfaces of the leads through the use of the first and second conductive wires. Indeed, as indicated above, the lower and upper dies 12, 14 of the assembly 10 are not electrically connected to separate and distinct surfaces of the leads 16 at all through the use of the lower and upper bond wires 26, 36. Rather, the lower and upper bond wires 26, 30 extend to a common surface of each lead 16, i.e., the upper surface 28. There is simply no showing or description in the Ball 1 reference regarding the extension of the lower and upper bond wires 26, 36 to separate and distinct surfaces of each

lead 16.

In addition to the foregoing, Applicant respectfully submits that the Ball 1 reference is devoid of any teaching or suggestion regarding the lower and upper dies 12, 14 being attached to each other (i.e., stacked upon one another) as recited in each of independent Claims 1 and 19. Rather, as indicated above, Figure 1 of the Ball 1 reference and the specification thereof clearly show and describe the lower shielding layer 20 as being used to engage the lower die 12 to the lower surfaces of the leads 16, with the upper shielding layer 30 being used to engage the upper die 14 to the upper surfaces 28 of the leads 16. There is simply no showing or description of the lower and upper dies 12, 14 being attached directly to each other and thus oriented in a stacked arrangement. Moreover, considering that the lower surface of each lead 16 in the Ball 1 reference is most closely analogous to the third surface of each lead recited in the pending claims at issue, the Ball 1 reference is also devoid of any teaching or suggestion regarding the lower surfaces of the leads 16 (which have the shielding layer 20 adhered thereto) being exposed within the plastic encapsulant 42.

The Ball 2 reference cited by the Examiner was relied upon solely for its purported teaching of the die paddle element recited in the pending claims at issue. Applicant respectfully submits that the deficiencies of the Ball 1 reference as they relate to the above-described elements/limitations are not alleviated by reliance upon the Ball 2 reference.

On the basis of the foregoing, Applicant respectfully submits that the stated grounds of rejection have been overcome, and that Claims 1-11 and 19-25 are now in condition for allowance. An early Notice of Allowance is therefore respectfully requested.

Attached hereto is a marked-up version of the changes made to the claims by the current

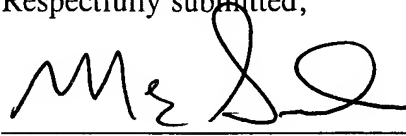
Amendment. The attached page is captioned "Version with markings to show changes made".

If any additional fee is required, please charge Deposit Account Number 19-4330.

Respectfully submitted,

Date: 1/20/03

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VERSION WITH MARKINGS TO SHOW CHANGES MADE

In the Claims:

Please amend the following claims:

3. (Amended) The semiconductor package of Claim 2 ~~1~~ wherein:

the conductive ~~wires~~ connectors comprise first and second conductive wires;

the bond pads of the first semiconductor die are electrically connected to respective ones of the first surfaces of the leads by ~~respective ones of~~ the first conductive wires; and

the bond pads of the second semiconductor die are electrically connected to respective ones of the second surfaces of the leads by ~~respective ones of~~ the second conductive wires.

21. (Amended) The semiconductor package of Claim 20 wherein:

each of the leads defines opposed first and second surfaces and a third surface which is opposed to the second surface ~~and~~ , the first surface being oriented between the second and third surfaces;

the bond pads of the first semiconductor die are electrically connected to respective ones of the first surfaces of the leads by ~~respective ones of~~ first conductive wires; and

the bond pads of the second semiconductor die are electrically connected to respective ones of the second surfaces of the leads by ~~respective ones of~~ second conductive wires.